भारतीय मानक

IS 13945 : 2023

Indian Standard

बल्क हैंडलिंग उपस्कर — बैग भरने की मशीने (यांत्रिक किस्म) — आंकड़ा पत्र

(पहला पुनरीक्षण)

Bulk Handling Equipment — Bagging Machines (Electronic Type) — Data Sheet

(First Revision)

ICS 53.040.01

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June 2023

Price Group 5

Earth Moving Equipment and Material Handling Sectional Committee, MED 07

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Earth Moving Equipment and Material Handling Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was originally issued in 1994. The present revision has been taken up with a view to incorporating the modifications found necessary as a result of experience gained in the use of this standard. Also, in this revision, the standard has been brought into latest style and format of Indian Standards, and references to Indian Standards, wherever applicable have been updated.

This standard covers the data to be given while specifying an electronic type bagging machine. The requirements laid down in this standard are not withstanding the requirements of any other Status, Regulations, Acts or Rules or any other General or State Governments Orders issued from time to time which are otherwise to be met.

Electronic type bagging machines are taking the place of mechanical type bagging machines where feasible. This Indian Standard attempts to provide uniform guidelines to the purchaser and the supplier for exchange of data for proper selection and design of the electronic type bagging machines.

The general requirements for design and construction of bagging machines of electronic type are covered by IS 13992. The general requirements for design and construction of mechanical type bagging machines are covered in IS 13989.

The composition of the committee responsible for the formulation of this standard is listed in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

BULK HANDLING EQUIPMENT — BAGGING MACHINES (ELECTRONIC TYPE) — DATA SHEET

(First Revision)

1 SCOPE

This Indian Standard covers the data sheet laying down the data required for the selection and design of bagging machines (electronic type).

2 GENERAL DATA

2.1 Equipment, Purchaser, Manufacturer

a) Equipment nomenclature :

b) Purchaser's equipment number/order number :

c) Quantity :

d) Manufacturer's Name :

e) Model number :

f) Service :

g) Duty :

h) Type : Full Load Cell
Lever Load Cell
Beam Load Cell

j) Area classification :

2.2 Site Conditions

a) Location of site :

b) Relative humidity :

c) Ambient temperature

1) Maximum temperature :

2) Minimum temperature :

3) Average temperature :

d) Installation : — Indoor
— Outdoor

e) Altitude :

f) Available power supply : — Voltage
— Phase
— Frequency

g) Surroundings : Dusty/Cyclonic/Corrosive/Abrasive

h) Compressed air quality : — Pressure
— Temperature
— Dew point

2.3 Material Handled Data

a) Material :

b) Average size, mm :

c) Maximum lump size, mm :

d) Percentage of large pieces :

e) Bulk density, kg/m^3 :

f) Angle of repose :

g) Moisture, percentage :

h) Corrosiveness :

j) Abrasiveness :

k) Flowability :

m) Chemical activity :

2.4 Bag Handled Data

a) Bag material :

b) Bag size :

c) Bag type : Open mouthed/Valve type

3 TECHNICAL SPECIFICATION DATA

a) Weighment per fill : 10 kg/25 kg/50 kg/75 kg/100 kg

b) Capacity (tip/hour) :

c) Accuracy :

  1) Per weighment :

  2) For any consecutive 20 bags :

d) Type of feeding : Gravity/Others

e) Equipment housing : Open/Enclosed

f) Type of control : Microprocessor, Analogue, Self-optimizing

g) Data logger and printer with control unit : Required/Not required

h) Control location : Local for operation and remote central for control panel/At different points

j) Discharge : Automatic/Controlled by the bag holder

k) Filled bag release : Automatic

m) Flapper actuation : Electoneumatic

n) Bag holder : Pneumatically operated Mush room keys, Foot switch

p) Height at which local control is to be provided :

q) Signal for weigher discharge : Readiness coloured lamps

r) Counter weight : Required/Not required

If required, weight (kg)

s) Air consumption :

1) Compressed air : m^3/h

2) Dedusting air : m^3/h

3) Power : kW

t) Aspiration details :

u) Quantity of off-take air (m^3) :

v) Dedusting requirements :

w) Agitator : Provided/Not provided

y) Overall dimensions of bagging machine :

z) Equipment weight, kg :

aa) Distance of control panel from the machine (m) :

1) Minimum :

2) Maximum :

bb) Electric motor :

cc) Motor protection :

dd) Steps of feed variation :

ee) Residual material discharge : Manual

ff) Burst bag discharge : Manual

gg) Utility requirements :

1) Compressed air

Quantity: Continuous requirement :
Peak requirement :

Pressure :
Temperature :
Humidity :

2) Power :

hh) Material of construction :

  1) Housing :
  2) Weigh hopper :
  3) Bag holder :
  4) Lever :
  5) Load cell :
  6) Antisway wire :
  7) All other parts coming in contact with the material being handled :
  8) Drive pulleys :
  9) Surge hopper :
  10) Agitator :
  11) Feeder :

4 LOAD CELL SPECIFICATION DATA

a) Type of load cell :
b) Make of load cell :
c) Range of load cell :
d) Capacity :
e) Hysteresis :
f) Non-linearity :
g) Temperature effects :
h) Life :
j) Safe over load :

5 OPERATIONAL CONTROL REQUIREMENTS

a) Automatic check weighing of every weighment : Required/Not required
b) Automatic zero taring of weigh hopper for weighment : Required/Not required
c) Auto Check : Required/Not required

If required, specify its frequency

d) Automatic fall quantity correction : Required/Not required
e) Automatic calibration by push button : Required/Not required
f) Adjustable over/under tolerance band : Required/Not required

g) Automatic sampling programme : Required/Not required

h) Low level override : Required/Not required

j) Manual discharge : Required/Not required

k) Feed mode selector : Required/Not required

m) Power control switch : Required/Not required

n) Digital input switch : Required/Not required

p) Net weight and tare display : Required/Not required

q) Alarm facility for over and under tolerance weighment : Required/Not required

r) Indicator for ‘Minus-Good-Plus’ type digital : Required/Not required

s) Display advance : Required/Not required

t) Diagnostic indicator : Required/Not required

u) Acknowledgement of any fault condition : Required/Not required

v) Input data display : Required/Not required

w) Run/Hold switch : Required/Not required

y) Automatic dribble feed regulation : Required/Not required

z) Automatic switch for weight selection : Required/Not required

aa) Details of data logger and its printer : Required/Not required

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Earth Moving Equipment and Material Handling Sectional Committee, MED 07

Organization	*Representative*(*s*)
BEML Limited, Bengaluru	Shri V. Sekar **(*Chairperson*)**
Airports Authority of India, New Delhi	Shri K. S. Kunwar Shri Jaspal Singh (*Alternate*)
Automotive Research Association of India, Pune	Shri A. Akbar Badusha
BEML Limited, Bengaluru	Shri Hemant kumar
Bharat Coking Coal Limited, Dhanbad	Shri Arun Nand Sahay Shri Chandra Shekhar S. I. (*Alternate*)
Bharat Heavy Electrical Limited, New Delhi	Shri G. Bhagchandani Shri S. K. Bhaumik (*Alternate*)
Caterpillar India Private Limited, Chennai	Shri K. Reji Jose Shri V. Bhaskaran (*Alternate*)
Cement Corporation of India Limited, New Delhi	Shri A. K. Srivastava Shri Anurag Kumar Saini (*Alternate*)
Central Mine Planning and Design Institute Limited, Ranchi	Shri Parag Majumdar Shri Praveen K. Sinha (*Alternate*)
Directorate General Factory Advice Service and Labour Institutes, Mumbai	Shri Sumit Roy
Directorate General of Mines Safety, Dhanbad	Shri D. B. Nayak Shri Vijay Yadaorao Barapatre (*Alternate*)
Directorate General of Quality Assurance, Ministry of Defense, New Delhi	Lt Col Sidharth Khattri Shri Raghubir Singh (*Alternate*)
Engineers India Limited, New Delhi	Shri K. C. Paikar Shri R. R. Shrivastava (*Alternate*)
Epiroc Mining India Limited, Nashik	Shri Prakash Gore
Escorts Construction Equipment Limited, Faridabad	Shri Faiz Ahmad Ms Rupali Sharma (*Young Professional*)
Fact Engineering and Design Organization, New Delhi	Shri R. K. Pallai Shri Juby Chandy (*Alternate*)
Heavy Engineering Corporation Limited, Ranchi	Shri Aravind Doss Shri Amit Pal (*Alternate* I) Shri Vijay Kumar (*Alternate* II)
Indian Construction Equipment Manufacturers Association, New Delhi	Shri K. V. Krishnamurthy
Indian Institute of Technology (ISM), Dhanbad	Prof L. A. Kumaraswamidhas
JCB India Limited, New Delhi	Shri Saurabh Dalela Shri Vivek Rawat (*Alternate*)
John Deere India Private Limited, Mumbai	Shri Karthik Kaliappan Shri Raj Anand (*Alternate*)
Komatsu India Private Limited, Bengaluru	Shri M. Rajendran Shri Vikrant Sharma (*Alternate*)

Organization	*Representative*(*s*)
L & T Komatsu Limited	SHRI G. S. NARAYANA SHRI K. KESHAVA (*Alternate*)
Mahindra Construction Equipment, Chakan	SHRI GOPLAKRISHNA RAJENDRA
Manitou India Limited, Greater Noida	SHRI ATUL K. SINGHAL
Mcnally Bharat Engineering Company Limited, Kolkata	SHRI ASHOK KUMAR BOSE SHRI SANDIPAN DAW (*Alternate*)
Ministry of Heavy Industries and Public Enterprises, Department of Heavy Industry, New Delhi	SHRI SUSHIL LAKRA
Ministry of Shipping, New Delhi	SHRI ANIL PRUTHI SHRI RAMJI SINGH (*Alternate*)
Mumbai Port Trust, Mumbai	SHRI DILIPVISHWANATHAN SHRI PANDIAN SEKAR (*Alternate*)
NTPC Limited, New Delhi	SHRI MADHUKAR ANAND SHRI P. S. CHATTERJEE (*Alternate*)
National Council for Cement and building Materials, Faridabad	SHRI KAPIL KUKREJA SHRI SAURABH BHATNAGAR (*Alternate*)
National Mineral Development Corporation, Hyderabad	SHRI S. J. RAO SHRI S. K. ROY (*Alternate*)
Office of Development Commissioner (MSME), New Delhi	SHRI SUSANTA KUMAR SOM SHRI SUVANKAR SANTRA (*Alternate*)
Project and Development India Limited, Noida	SHRI NARENDRA SINGH SHRI ABHIJIT MAHATA (*Alternate*)
Volvo Construction Equipments India Private Limited, Bengaluru	SHRI SAI PRASAD POLIPALLI SHRI K. RAGHURAMAN (*Alternate*)
In Personal Capacity (*165, 2nd Main Road, 4th Cross, Chamarajpet, Bengaluru-560018*)	SHRI G. NAGARAJ VENKATESH
BIS Directorate General	SHRI RAJNEESH KHOSLA, SCIENTIST 'F'/SENIOR DIRECTOR AND HEAD (MECHANICAL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
MS. KHASHBOO KUMARI
SCIENTIST 'D'/JOINT DIRECTOR
(MECHANICAL ENGINEERING), BIS

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